

## WHAT IS CLAIMED IS:

1. A method of improving a picture quality in encoding of digitally compressed video, said method comprising the steps of:

5 encoding a sequence of picture information into a coded representation and locally reconstructed pictures by one picture at every one time instance;

filtering said locally reconstructed picture to obtain a locally filtered picture;

10 selecting a local reference picture from a group consisting of said locally reconstructed picture and said locally filtered picture of a same time instance; and

15 using said local reference picture in order to predict a motion compensation of a next picture in said encoding step.

2. A method of improving a picture quality in decoding of digitally compressed video, said method comprising the steps of:

20 decoding a coded representation into a sequence of reconstructed pictures by one picture at every one time instance;

filtering said reconstructed picture to obtain a filtered picture;

25 selecting a reference picture from a group consisting of said reconstructed picture and said filtered

picture of a same time instance; and

using said reference picture in order to predict a motion compensation of a next picture in said decoding step.

3. A method of improving a picture quality of  
5 digitally compressed video, said method comprising the steps of:

encoding a sequence of picture information into a coded representation by one picture at every one time instance;

10 decoding said coded representation into a sequence of reconstructed pictures by one picture at every one time instance;

filtering said reconstructed picture to obtain a filtered picture;

15 selecting a reference picture from a group consisting of said reconstructed picture and said filtered picture of a same time instance; and

using said reference picture in order to predict a motion compensation of a next picture in said decoding step.

20 4. A method of improving a picture quality in decoding of digitally compressed video, said method comprising the steps of:

25 decoding a coded representation into a sequence of reconstructed pictures by one picture at every one time instance;

filtering said reconstructed picture to obtain a filtered picture;

selecting a display picture from a group consisting of said reconstructed picture and said filtered picture of a same time instance;

sending said display picture to an output of a decoder;

selecting a reference picture from a group consisting of said reconstructed picture and said filtered picture of a same time instance; and

using said reference picture in order to predict a motion compensation of a next picture in said decoding step.

5. A method of improving a picture quality in decoding of digitally compressed video, said method comprising the steps of:

decoding a coded representation into a sequence of reconstructed pictures by one picture at every one time instance;

filtering said reconstructed picture to obtain a filtered picture;

selecting a display picture from a group consisting of said reconstructed picture and said filtered picture of a same time instance;

sending said display picture to an output of a decoder;

selecting a reference picture from a group consisting of said reconstructed picture and said display picture of a same time instance; and

5 using said reference picture in order to predict a motion compensation of a next picture in said decoding step.

6. The method according to any one of claims 1 to 5, wherein said step of obtaining said filtered picture works on a sub-portion of the picture by comparing quantization parameters of each sub-portion of the picture.

10 7. The method according to any one of claims 1 to 5, wherein said step of selecting said reference picture comprises the steps of:

deriving a switching criterion from the coded representation; and

15 using said switching criterion for said selection step.

8. The method according to any one of claims 1 to 5, wherein said step of selecting said reference picture comprises the steps of:

20 deriving a switching criterion from the reconstructed picture; and

using said switching criterion for said selection step.

25 9. The method according to claim 7 or 8, wherein said step of deriving said switching criterion comprises the

steps of:

extracting a plurality of quantization parameters  
from the coded representation;

calculating an average quantization parameter for  
5 the picture; and

comparing said average quantization parameter to a  
predefined threshold.

10 10. The method according to claim 7 or 8, wherein said  
step of deriving said switching criterion comprises the  
steps of:

extracting a plurality of quantization parameters  
from the coded representation;

calculating an average quantization parameter for  
the picture; and

15 comparing said average quantization parameter to a  
plurality of predefined threshold.

11. The method according to claim 9 or 10, further  
comprising the steps of:

20 producing an output image that is filtered if said  
quantization parameter is above a first threshold; and

storing said reference picture that is filtered if  
said quantization parameter is above a second threshold.

25 12. An apparatus for improving a picture quality in  
encoding of digitally compressed video, said apparatus  
comprising:

an encoding means for encoding a sequence of picture information into a coded representation and locally reconstructed pictures by one picture at every one time instance;

5           a means for filtering said locally reconstructed picture to obtain a locally filtered picture;

          a means for selecting a local reference picture from a group consisting of said locally reconstructed picture and said locally filtered picture of a same time  
10 instance; and

          a means for using said local reference picture in order to predict a motion compensation of a next picture in said encoding means.

13. An apparatus for improving a picture quality in  
15 decoding of digitally compressed video, said apparatus comprising:

          a decoding means for decoding a coded representation into a sequence of reconstructed pictures by one picture at every one time instance;

20           a means for filtering said reconstructed picture to obtain a filtered picture;

          a means for selecting a reference picture from a group consisting of said reconstructed picture and said filtered picture of a same time instance; and

25           a means for using said reference picture in order

to predict a motion compensation of a next picture in said decoding means.

14. An apparatus for improving a picture quality of digitally compressed video, said apparatus comprising:

5           an encoding means for encoding a sequence of picture information into a coded representation by one picture at every one time instance;

10           a decoding means for decoding said coded representation into a sequence of reconstructed pictures by one picture at every one time instance;

          a means for filtering said reconstructed picture to obtain a filtered picture;

15           a means for selecting a reference picture from a group consisting of said reconstructed picture and said filtered picture of a same time instance; and

          a means for using said reference picture in order to predict a motion compensation of a next picture in said decoding means.

20           15. An apparatus for improving a picture quality in decoding of digitally compressed video, said apparatus comprising:

          a decoding means for decoding a coded representation into a sequence of reconstructed pictures by one picture at every one time instance;

25           a means for filtering said reconstructed picture

to obtain a filtered picture;

a means for selecting a display picture from a group consisting of said reconstructed picture and said filtered picture of a same time instance;

5 a means for sending said display picture to an output of a decoder;

a means for selecting a reference picture from a group consisting of said reconstructed picture and said filtered picture of a same time instance; and

10 a means for using said reference picture in order to predict a motion compensation of a next picture in said decoding means.

16. An apparatus for improving a picture quality in decoding of digitally compressed video, said apparatus  
15 comprising:

a decoding means for decoding a coded representation into a sequence of reconstructed pictures by one picture at every one time instance;

20 a means for filtering said reconstructed picture to obtain a filtered picture;

a means for selecting a display picture from a group consisting of said reconstructed picture and said filtered picture of a same time instance;

25 a means for sending said display picture to an output of a decoder;



a means for selecting a reference picture from a group consisting of said reconstructed picture and said display picture of a same time instance; and

a means for using said reference picture in order  
5 to predict a motion compensation of a next picture in said decoding means.

17. The apparatus according to any one of claims 12 to 16, wherein said means for obtaining said filtered picture works on a sub-portion of the picture by comparing  
10 quantization parameters of each sub-portion of the picture.

18. The apparatus according to any one of claims 12 to 16, wherein said means for selecting said reference picture comprises:

a means for deriving a switching criterion from  
15 the coded representation; and

a means for using said switching criterion for said selection means.

19. The apparatus according to any one of claims 12 to 16, wherein said means for selecting said reference picture  
20 comprises:

a means for deriving a switching criterion from the reconstructed picture; and

a means for using said switching criterion for said selection means.

25 20. The apparatus according to claim 18 or 19, wherein

said means for deriving said switching criterion comprises:

a means for extracting a plurality of quantization parameters from the coded representation;

5 a means for calculating an average quantization parameter for the picture; and

a means for comparing said average quantization parameter to a predefined threshold.

21. The apparatus according to claim 18 or 19, wherein said means for deriving said switching criterion comprises:

10 a means for extracting a plurality of quantization parameters from the coded representation;

a means for calculating an average quantization parameter for the picture; and

15 a means for comparing said average quantization parameter to a plurality of predefined thresholds.

22. The apparatus according to claim 20 or 21, further comprising:

20 a means for producing an output image that is filtered if said quantization parameter is above a specified higher threshold; and

a means for storing said reference picture that is filtered if said quantization parameter is below a specified lower threshold.